

WHAT IS CLAIMED IS:

1. A method for adhering an integrated circuit to a substrate comprising:
receiving a boat configured to hold a plurality of substrates at a first position, the
5 substrates having a first surface configured to support an integrated circuit;
heating the boat of substrates at the first position;
transferring the boat of substrates from the first position to a second position;
positioning the integrated circuit on the first surface of a selected one of the
plurality of substrates at the second position, the integrated circuit comprising an adhesive
10 surface operable to adhere the integrated circuit to the selected substrate.
2. The method of Claim 1, wherein the adhesive surface is selected so as to melt at a
predetermined temperature.
- 15 3. The method of Claim 1, wherein the substrate comprises:
a first layer of film comprising an outer film surface;
a second layer comprising a conductive material, the second layer positioned
adjacent to the outer film surface of the first layer; and
a third layer comprising a solder mask positioned adjacent to the second layer, the
20 third layer selected so as to not melt at the predetermined temperature, an outer surface of
the third layer configured to support the integrated circuit.
4. The method of Claim 3, wherein the first layer has a thickness of 45 to 55 microns.
- 25 5. The method of Claim 3, wherein the first layer has a thickness of 67 to 83 microns.
6. The method of Claim 1, wherein heating the boat of substrates at the first position
comprises positioning a portion of the substrates in the boat proximate a heating element
such that warping of the substrates is prevented.

7. The method of Claim 1, wherein heating the boat of substrates at the first position comprises heating the boat of substrates to a temperature of 125 to 160 °C.

8. The method of Claim 1, further comprising holding the selected substrate in the second position using a vacuum chuck.

9. The method of Claim 1, further comprising maintaining the temperature of the selected substrate at a temperature of 125 to 160 °C at a the second position.

10. The method of Claim 1, further comprising receiving the boat of substrates at a feeding system, the feeding system operable to transport the boat to the first position.

11. The method of Claim 1, further comprising calculating a plurality of bond line thickness measurements after the integrated circuit is positioned on the first surface of the selected substrate.

12. The method of Claim 1, further comprising performing an adherence test to determine if voids are present between the first surface of the substrate and the integrated circuit.

13. An apparatus for adhering an integrated circuit to a substrate, comprising:

a first position operable to:

receive a boat configured to hold a plurality of substrates, the substrates having a first surface adapted to support an integrated circuit; and

heat the boat of substrates;

a second position operable to receive the plurality of substrates from the first position; and

a first transfer assembly operable to position the integrated circuit on the first surface of a selected one of the plurality of substrates, the integrated circuit comprising an adhesive surface operable to adhere the integrated circuit to the selected substrate.

14. The apparatus of Claim 13, wherein the adhesive surface is selected so as to melt at a predetermined temperature.

15. The apparatus of Claim 13, wherein the substrate comprises:

a first layer of film comprising an outer film surface;

a second layer comprising a conductive material, the second layer positioned adjacent to the outer film surface of the first layer; and

a third layer comprising a solder mask positioned adjacent to the second layer, the third layer selected so as to not melt at the predetermined temperature, an outer surface of the third layer configured to support the integrated circuit.

16. The apparatus of Claim 15, wherein the first layer has a thickness of 45 to 55 microns.

17. The apparatus of Claim 15, wherein the first layer has a thickness of 67 to 83 microns.

18. The apparatus of Claim 13, wherein the first position comprises a heating element proximate the boat, the heating element operable to heat a portion of the substrates in the boat such that warping of the substrates is prevented.

5 19. The apparatus of Claim 13, wherein the first position is operable to heat the boat of substrates to a temperature of 125 to 160 °C.

10 20. The apparatus of Claim 13, wherein the second position is further operable to hold the selected substrate by applying a vacuum force to the selected substrate through a chuck.

21. The apparatus of Claim 13, wherein the second position is further operable to maintain the temperature of the selected substrate at 125 to 160 °C.

15 22. The apparatus of Claim 13, further comprising a feeding system operable to:
receive the boat of substrates; and
transport the boat of substrates to the first position.